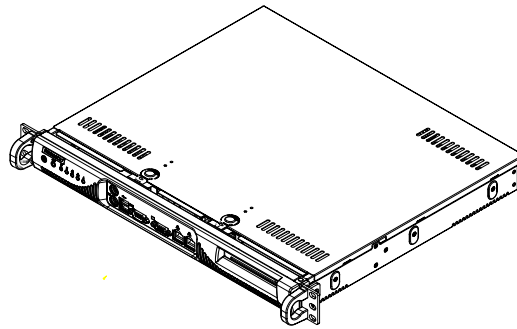
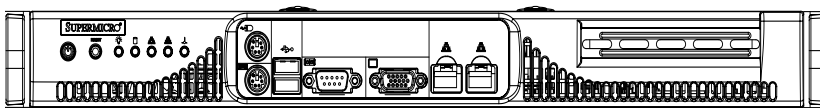
SUPERMICRO®

The SC513 -L420 Series & the SC513-L260 Series





SC513 CHASSIS

USER'S GUIDE

1.0

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Table of Contents

Chapter I: Safety Information and Technical Specifications 1-4

1-1. Electrical Safety Guidelines 1-4
1-2. General Safety Guidelines 1-5
1-3. ESD Safety Guidelines 1-6
1-4. Operation Safety Guidelines 1-6
1-5. Product Compliance Information 1-8
1-6. Packing List and the SC513 Specifications 1-9

Chapter 2: Chassis Description and Installation Procedures 2-1

2-1. Chassis Description 2-1
A. Contents of the Accessory Kit 2-1
B. Power Cords/SATA Cables 2-1
C. Chassis Front View and the Front Control Panel 2-2
D. Chassis Rear View and the Back Panel 2-4

2-2. Chassis Installation 2-5
A. Important Safety Guidelines 2-5
B. Tools Needed 2-5
C. Removing the Top Chassis Cover and the HDD Tray Bracket 2-6
D. Removing the HDD Drive Tray Housing and Installing a HDD 2-7
E Installing the Motherboard 2-8
F. Installing and Un-installing the Heatsink Mechanism 2-9
G. Removing and Installing the Front Bezel 2-10
H-1. Installing the Cooling Fan Module and the Air Shroud 2-11
I. Installing Chassis Rails 2-12
J-1. Rack Installation for the Traditional UP Design 2-14
J-2. Rack Installation for the Open Rack Design 2-16
K. Installing the SC513 into the Racks 2-20

Chapter 1-Safety Information and Technical Specifications

1-1 Electrical Safety Guidelines

Warning: *To avoid electrical shock, check the power cords as follows:*

Checking the Power Cords

- Use the exact type of power cords as required.
- Be sure to use the power cord(s) that came with safety certifications.
- The power cord(s) must be compliant with the AC voltage requirements in your region.
- The power cord plug cap must have an electrical current rating that is at least 125% of the electrical current rating of this product.
- The power cord plug cap that plugs into the AC receptacle on the power supply must be an IEC 320, sheet C13, type female connector.
- Be sure to disconnect the power supply before accessing the SC513 or its components.
- Plug the Power cord(s) into a socket that is properly grounded before turning on the power.

Warning: *Follow the guidelines below to avoid possible damages to the system or injury to yourself:*

General Electrical Safety Guidelines

- Be aware of the locations of the power switches on the chassis and in the room, so you can disconnect the power supply if an accident occurs.
- Take extra precautionary measures when working with high voltage components. It is not recommended to work alone.
- Before removing or installing main system components, be sue to disconnect the power first. Turn off the system before you disconnect the PS.
- Use only one hand when working with powered-on electrical equipment to avoid possible electrical shock.

- Use rubber mats specifically designed as electrical insulators when working with computer systems.
- The power supply or power cord must include a grounding plug and must be plugged into grounded outlets.
- Motherboard Battery: CAUTION -Make sure not to install the onboard battery upside down to avoid possible explosion. Make sure that the positive side should be facing up on the motherboard. This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- CD-ROM Laser: CAUTION - Do not open the enclosures of power supplies or CD ROM to avoid injury.

1-2 General Safety Guidelines

Warning: *Follow these rules to ensure general safety:*

Keep the area around the SC513 clean and free of clutter.

- To avoid injuries to the back, be sure to use your leg muscles, keep your back straight, and bend your knees, when lifting the system.
- After removing the components or chassis covers from the system, place them on a table for safeguard.
- Avoid wearing loose clothing to preventing it from coming into contact with
- Be sure to remove any jewelry or metal objects before working on the chassis to avoid short circuits should these objects come into contact with power circuits.
- After accessing the interior of the chassis, be sure to close the chassis with chassis covers and secure the chassis to the racks with screws.

1-3 ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excel lent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

1-4 Operation Safety Guidelines

Warning: *For proper cooling, make sure to install all chassis covers before turning on the system. If this rule is not strictly followed, warranty may become void. Do not open the casing of a power supply. Power supplies can only be accessed and serviced by a qualified technician of the manufacturer.*

To avoid personal injury and property damage, please carefully follow all the safety steps listed below:

Before accessing the chassis:

1. Turn off all peripheral devices connected to the SC513.
2. Press the power button to power off the system.
3. Unplug all power cords from the system or the wall outlets.
4. Disconnect all the cables and label the cables for easy identification.
5. Use a grounded wrist strap designed to prevent static discharge when handling components.

Removing the chassis covers:

After completing the above steps, you can remove the covers and install components/peripheral devices into the chassis as described in Chapter 2.

1. Unlock and remove the screws and fasteners to remove the cover or components.
2. Save all the screws and fasteners for later use. (If necessary, label these screws or fasteners for easy identification.)
3. Follow the instruction given in Chapter 3 to remove the chassis covers.

Reinstalling the chassis covers:

To maintain proper system cooling and airflow, do not operate the system without installing all chassis covers back to the chassis. To reinstall the chassis covers, please follow the steps listed below:

1. Make sure that all components and devices are securely fastened on the chassis and there are no loose parts/screws inside the chassis.
2. Make sure that all cables are properly connected to the connectors and ports.
3. Use the original screws or fasteners to install the covers to the chassis.
4. Be sure to lock to the chassis or the system to prevent unauthorized access.
5. For proper cooling, enclose the chassis with covers before operating the system.

Before installing the chassis into a rack:

1. Make sure that the rack is securely anchored onto a unmovable surface or structure before installing the chassis into the rack.
2. Unplug the power cord(s) of the rack before installing the chassis into the rack.
3. Make sure that the system is adequately supported. Make sure that all the components are securely fastened to the chassis toprevent components falling off from the chassis.
4. Be sure to install an AC Power Disconnect for the entire rack assembly and this Power Disconnect must be clearly marked.
5. The rack assembly shall be properly grounded to avoid electric shock.
6. The rack assembly must provide sufficient airflow to the chassis for proper cooling.

1-5 Product Compliance Information

If integrated with a motherboard validated and recommended by Supermicro, and configured based upon the instructions outlined in this manual, the SC513 Chassis is compliant with the following safety standards/requirements:

Product Safety

*Canada/USA--UL60 950-CSA60 950
*European Union--EN 60 950
*International--IEC 60 950

Electromagnetic Compatibility (EMC)-Emissions

*European Union--EN55022: 1994
*International--CISPR 22
*USA--Title 47 CFR, Part 15

Electromagnetic Compatibility-Immunity

*European Union--EN55024: 1998
*International--CISPR 24

Power Line Harmonics/Voltage Flicker

*European Union--EN61000-3-2/EN61000-3-3
*International--IEC61000-3-2

1-6 Packing List and the SC513 Specifications

A. The SC513 chassis contains the following:

The SC513L-260 Series:

Component	Qty	Part Number
Blower	1	FAN-0059

The SC513L-420 Series:

Component	Qty	Part Number
Fan	3	FAN-0078

B. The Accessory Kit

The Accessory Kit contains the following:

Component	Quantity
AC Power Cord	1
Screws	1 set
Rackmount Kit	1 (CSE-PT8) –(*optional)
SC513 I/O Label	2
Hard Disk Drive Mounting Kit	1
Air Shroud	1

C. Power Supply Specifications of the SC513

Power supply spec	**260W**	**420W**
Mfr. Model#	SP262-1S	SP423-1S
Mfr. Part#	PWS-0055	PWS-0053
Rated AC input voltage	100-240V AC	100-240V AC
Rated input frequency	50-60 Hz	50-60 Hz
Rated input current	5A MAX	7A MAX
Rated output power	260W	420W
Maximum rated BTU	1370 BTUs/Hr	2220BTUs/Hr
Nominal DC output		
+3.3V	15A	20A
+5V	25A	30A
+12V	18A	32A
-12V	1A	1A
+5Vsb	2A	2A

Chapter 2: Chassis Description and Installation Instructions

2-1 Chassis Description

A. Contents of the Accessory Kit:

The following items are included in the Accessory Kit:

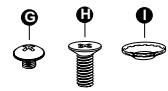
M/B

A. Pan head w/ lock 6-32 x 4.5 mm [0.177]

DRIVE

D. Pan head 6-32 x 5 mm [0.197] (*For 3.5" HDD)
E. Round head M3 x 5 mm [0.197] (*For 2.5" HDD)

RAIL (*Not included in the shipment)



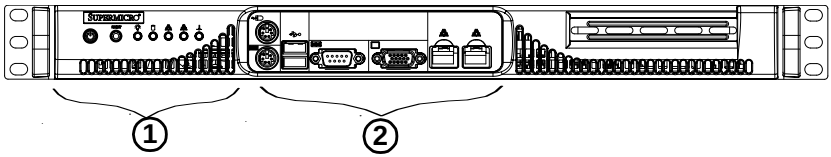
G. Round head M4 x 4 mm [0.157]
H. Flat head M5 x 12 mm [0.472]
I. Washer for M5

B. Power Cords/SATA Cables:

1. SATA Power Cord: Y Cable L=50CM (19.69")
2. SATA (Serial ATA) Cable L=25CM (9.84")

C. Chassis Front View and the Front Control Panel

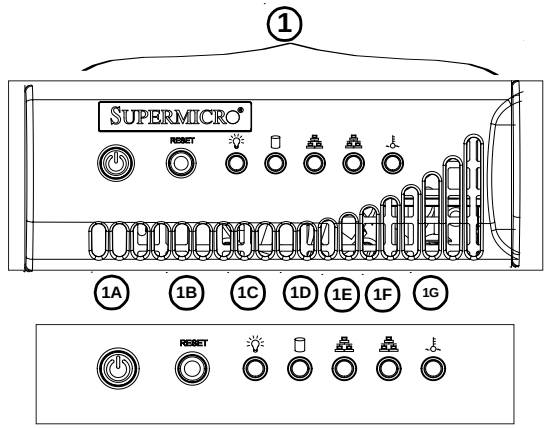
Chassis Front View



1. Front Panel and I/O Device Definitions

1. Front Panel LED Indicators
2. I/O Devices
3A. Two 2.5" Drives (*SC513L-420)
3B. One 3.5" Drive (*SC513L-260)

Front Panel LED Indicators



LED Button Definitions

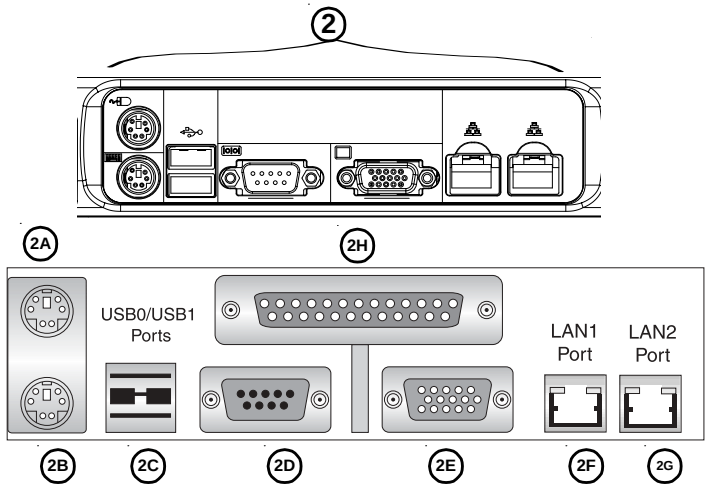
1A. Power Button
1B. Reset Button
1C. Power Indicator
1D. HDD Activity
1E. LAN1
1F. LAN2
1G. Overheat

(*Note: After the Alarm goes off, please press the Reset Button to reactivate the function of Alarm Reset.)

Front Control Panel LED Button Descriptions

LED Button	Color	Condition	Description
Power	Green	On	System On
		Off	System Off
HDD	Amber	Blink	HDD Activity
		Off	No Activity
LAN1 & LAN2	Green	On	Linked
		Blink	LAN Activity
		Off	Disconnected
Overheat	Red	On	System Overheat
		Off	System Normal

2. I/O Devices/Components



2A. Mouse (Green)
2B. Keyboard (Purple)
2C. USB 0/1
2D. COM Port (Turquoise)
2E. VGA (or COM Port 2)
2F. LAN Port 1
2G. LAN Port2
2H. Parallel Port (*Optional)

(*Note: The actual I/O Configuration of your system might be different from the one shown above.)

D. Chassis Rear View

SC513 Chassis Rear View

2-2 Chassis Installation

A. Important Safety Guidelines

This product shall only be accessed, assembled and serviced by technically qualified personnel or technicians.

To avoid personal injury and property damage, please read all the information provided in Chapter 1, and carefully follow all the Safety Guidelines listed before accessing or servicing the SC513 or its components. For your convenience, some Safety Steps are also listed below:

Safety Steps

Before accessing the chassis:

1. Turn off all peripheral devices and turn off the power supply connected to the SC513.
2. Unplug all power cords from the system or the wall outlets.
3. Disconnect all the cables and label the cables for easy identification.
4. Use a grounded wrist strap designed to prevent static discharge when handling components.

Removing the chassis covers:

After completing the above steps, you can remove the chassis covers and install components and devices into the chassis as described in this chapter.

1. Unlock and remove the screws and fasteners to remove the cover or components.
2. Save all the screws and fasteners for later use. (If necessary, label these screws or fasteners for easy identification.)
3. Follow the instructions given in this chapter to remove the chassis covers.

(*Note: Removing the top cover when the system is running will degrade thermal performance.)

B. Tools needed

1. Phillips Screw Driver
2. Antistatic Strap

C. Removing the Top Chassis Cover and the HDD Tray Bracket from the chassis

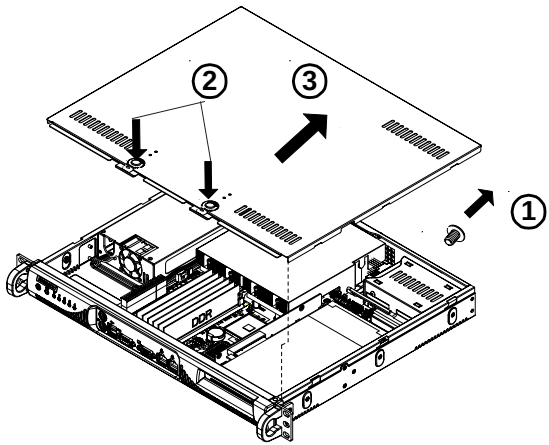
Before installing a hard drive into the chassis, you need to remove the top cover and the HDD tray bracket from the chassis. **(*Note: Removing the top cover when the system is running will degrade thermal performance.)**

Procedures

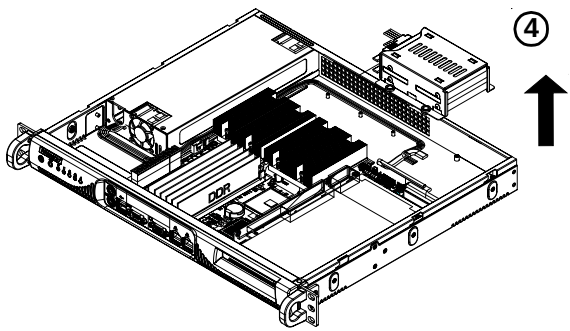
1. Remove the screw from the back panel of the chassis as shown in the picture.

2. Press the two tabs on the top cover to release the cover from the locking position.

3. Once the top cover is loosened, slide it out of the chassis.



4. Remove the HDD tray bracket from the chassis as shown in the picture.



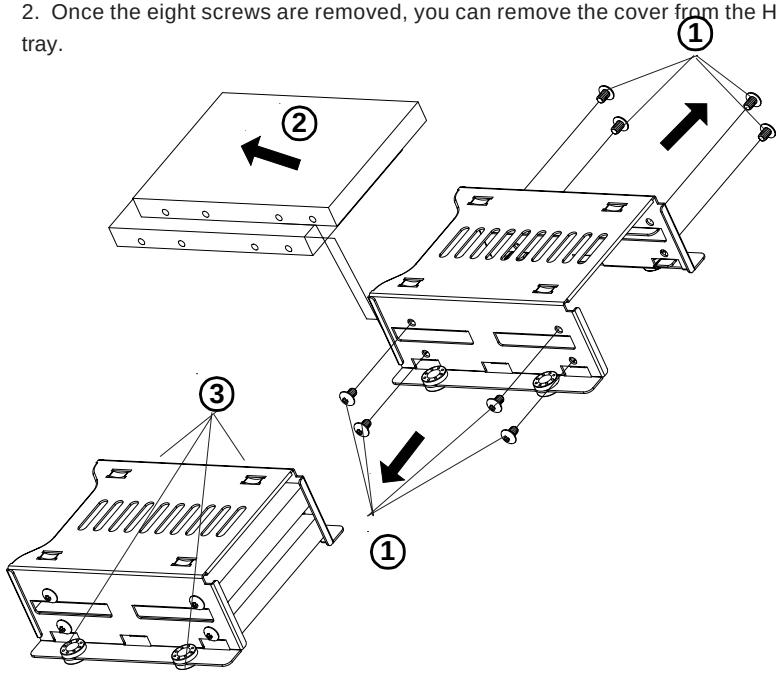
D. Removing the HDD Drive Tray Housing and Installing Hard Disks

After the HDD Drive Tray Bracket is removed from the chassis, you can install HDDs into the HDD Drive Housing.

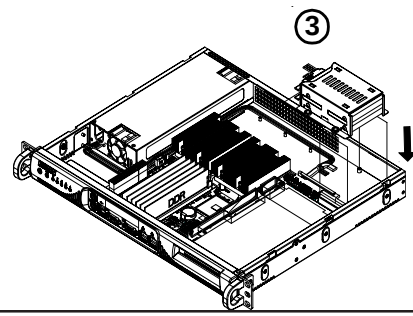
Procedures

1. Remove the four screws on each side of HDD Tray Bracket as shown in the picture.

2. Once the eight screws are removed, you can remove the cover from the HDD tray.



3. Afte you've mounted hard drives in the drive tray, secure the drive tray to the chassis with four grommets as shown in the picture below.



E. Installing the Motherboard

Be sure to disconnect the power supply before accessing or installing the motherboard into the chassis. (Refer to Chapter 1 for Safety Guidelines.)

Procedures

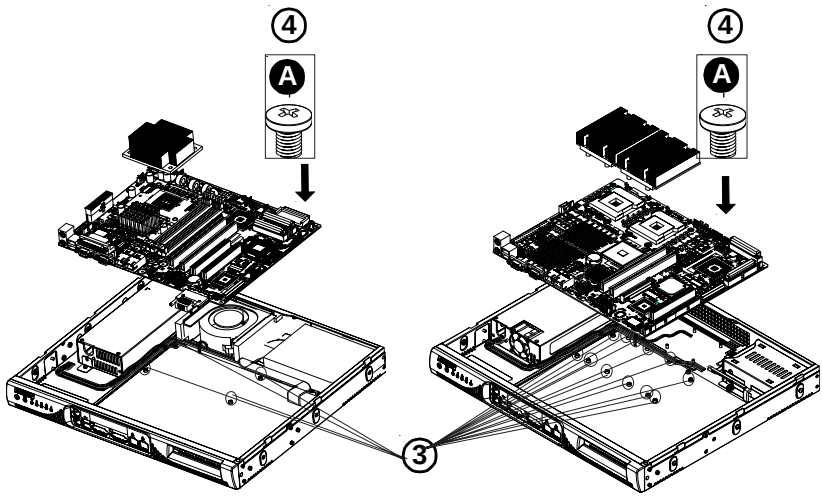
1. Lay the chassis on a flat surface.

2. Locate the CPU location(s). If you have a UP system, be sure to install heatsink brackets on the reverse side of the CPU. (If you have a DP system, please ignore this step because the heatsink brackets are pre-installed by the manufacturer.)

3. Lay the motherboard on the standoffs, and secure the motherboard (and Mylar sheets if any) to the chassis with type A screws. (*Refer to Page 2-1 MB kit for the Type A screw.)

4. Secure CPU heatsink(s) to the motherboard. (*Refer to the next section for heatsink installation.)

5. Install the air shroud(s) on the motherboard by inserting air shroud clips into the corresponding holes.



UP Systems **DP Systems**

(****Note:** the CPU, heatsinks and the motherboard shown above are for reference only!! Both items are not included in the SC513 shipping package.)

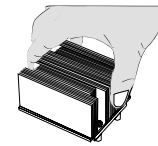
F. Installing and Un-installing the Heatsink Mechanism

Heatsinks are heavy. Please handle with care!!

***Note: Be sure to use Heatsink (# SNK-P0011) for a UP system, and use Heatsink (#SNK-P0007) for a DP System.**

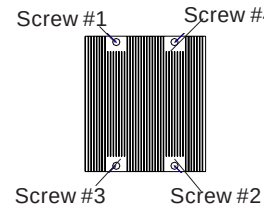
Procedures: Heatsink Installation

1. Do not apply any thermal grease to the heatsink or the CPU die; the required amount of thermal grease has already been applied.



2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.

3. Screw in two diagonal screws (ie the #1 and the #2 screws) until just snug (-do not fully tighten the screws to avoid possible damage to the CPU.)



4. Finish the installation by fully tightening all four screws.

Procedures: Un-installing the Heatsink

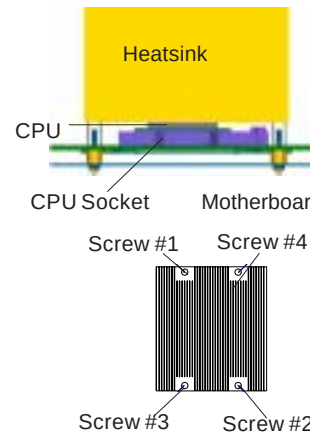
1. Unscrew and remove the heatsink screws from the motherboard in the sequence as show in the fourth picture on the right.

2. Hold the heatsink as show in the first picture on the right and gently wiggle the heatsink to loosen it from the CPU. (Do not use excessive force when wiggling the heatsink!!)

3. Once the CPU is loosened from the heatsink, remove the heatsink from the CPU socket.

4. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease on the surface before you re-install the CPU and the heatsink.

MB w/Heatsink installed

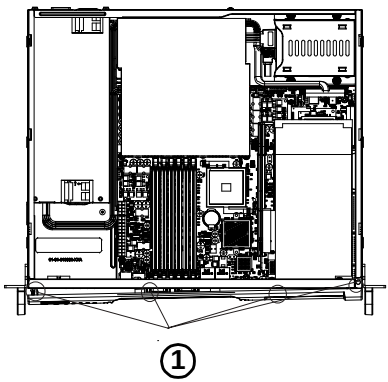


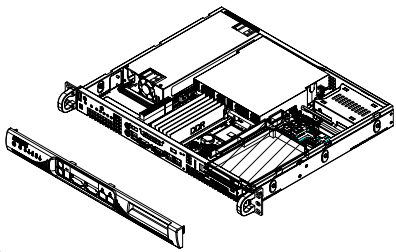
G. Removing and Installing the Front Bezel

To access the front panel, you will need to remove the front bezel from the chassis. Be sure to install the front bezel before operating the system.

Procedures (-Removing the front bezel)

1. Locate the four release tabs in the chassis as shown in the picture.
2. Gently press the release tabs to loosen the front bezel.
3. Once the front bezel is loosened, remove it from the chassis.

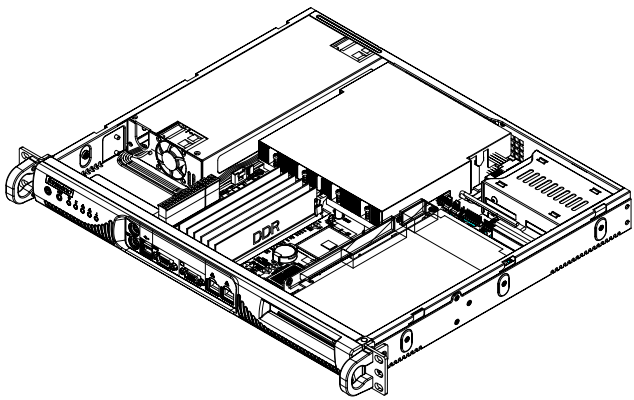




SC513 w/Front Bezel Removed

Procedures (-Installing the front bezel)

4. Insert the release tabs on the front bezel to the corresponding holes on the front panel of the chassis as shown in the right picture above.
5. Make sure that the front bezel is securely and properly installed in the chassis.



SC513 w/Front Bezel Installed

H-1. Installing the Cooling Fan Module and the Air Shroud for a DP System

After the motherboard and the heatsink(s) have been installed in the chassis, you need to install cooling fans and an air shroud for proper system cooling.

Procedures

(*Installing the Cooling Fan Module for a DP System)

1. Locate three mounting tabs on the cooling fan module and their corresponding module mounting holes on the chassis as shown in the picture below.

2. Properly place the cooling fan module inside the chassis and make sure that the mounting tabs are aligned with the corresponding mounting holes in the chassis.

3. Secure the cooling fan module to the chassis with four rubber grommets.

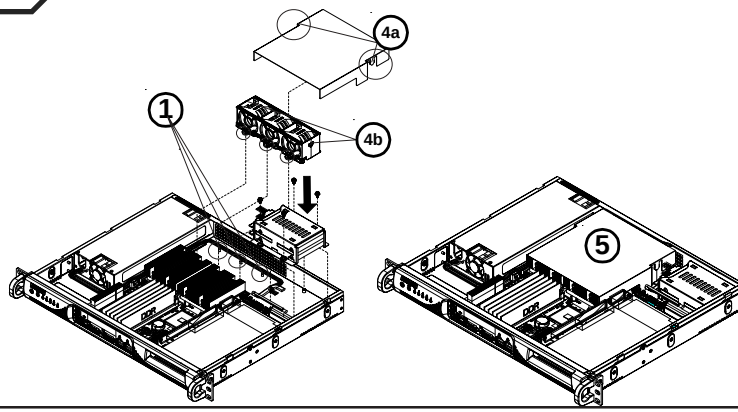
Procedures (-Installing the Air Shroud)

After the cooling fan module has been properly installed in the chassis, you will need to install an air shroud for proper cooling .

4. Locate two clips on the air shroud and the two openings on each side of the cooling module as shown in the picture.

5. Insert the clips on the air shroud into the openings on the cooling module and make sure that the air shroud is properly installed in the chassis as shown in the picture.

Warning: *For proper cooling, please make sure that all the chassis covers are installed before you operate the system. Out of warranty damage can occur if this rule is not strictly followed.*



H-2. Installing the Blower and the Air Shroud for a UP System

After the motherboard and the heatsink(s) have been installed in the chassis, you need to install cooling fans and an air shroud for proper system cooling.

Procedures

(*Installing the Blower for a UP System)

1. Locate two mounting holes on the rubber pad and their corresponding tabs on the chassis as shown in the picture below.

2. Place the rubber pad in the chassis and make sure that the rubber pad is properly seated on the bottom of the chassis.

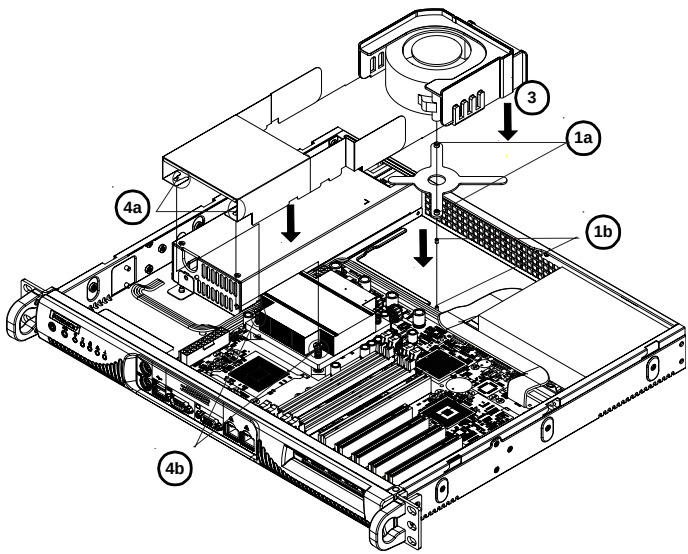
3. Place the blower on top of the rubber pad and make sure that the blower is securely installed in the chassis.

Procedures (*Installing the Air Shroud)

After the blower has been properly installed in the chassis, you will need to install the air shroud for proper cooling .

4. Locate the two openings on the air shroud and the two screws on the heatsink as shown in the picture.

5. Place the air shroud on top of the heatsink by sliding the two openings of the air shroud into the two screws on the heatsink. Make sure that the air shroud is properly installed in the chassis as shown in the picture.



I. Installing the Chassis Inner Rails (*Optional for the SC513)

(*Note: if your chassis does not come with chassis rails, please follow the procedure listed on the last page to install the SC513 directly into the rack.)

Please make sure that the chassis covers and chassis rails are installed on the chassis before you install the chassis into the rack.

To avoid personal injury and property damage, please carefully follow all the safety steps listed below:

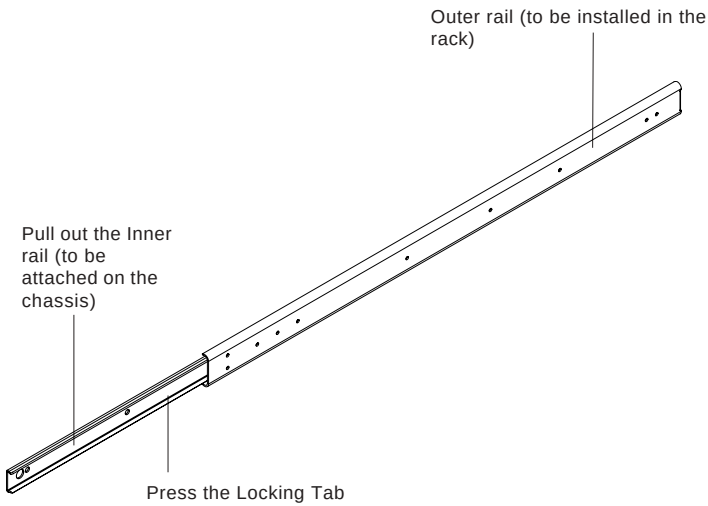
Before installing the Chassis rails:

1. Enclose the chassis with chassis covers.
2. Unplug the AC power cord(s).
3. Remove all external devices and connectors.

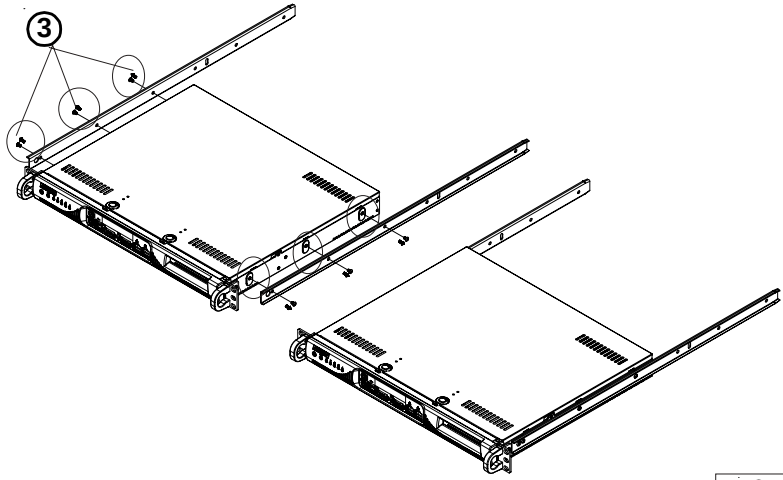
Procedures to Install Chassis Rails

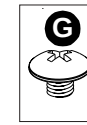
1. Included in the shipping package are a pair of rail assemblies. In each rail assembly, locate the inner rail and the outer rail.

2. Press the locking tab to release the inner rail from its locking position and pull out the inner rail from the rail assembly. (*The inner rails are to be attached to the chassis and the outer rails are to be installed in the rack.)



3. Locate the three holes on each side of the chassis and locate the three corresponding holes on each of the inner rail.





4. Attach an inner rail to each side of the chassis and secure the inner rail to the chassis by inserting three Type G screws through the holes on each side of the chassis and the inner rail. (Refer to Page 2-1 for the Type G screw.)

5. Repeat the above steps to install the other rail on the chassis.

J-1 Rack Installation for the Traditional UP Design (*Optional for the SC513)

After you have installed the inner rails on the chassis, you are ready to install the outer rails of rail assemblies to the rack.

(* The rails are designed to fit in the racks with the depth of 28" to 33".)

Procedures

1. In the package, locate a pair of front (-short) and rear (-long) brackets. Please note that the brackets are marked with Up/Front Arrows (-front) and Up/Rear arrows (-rear).

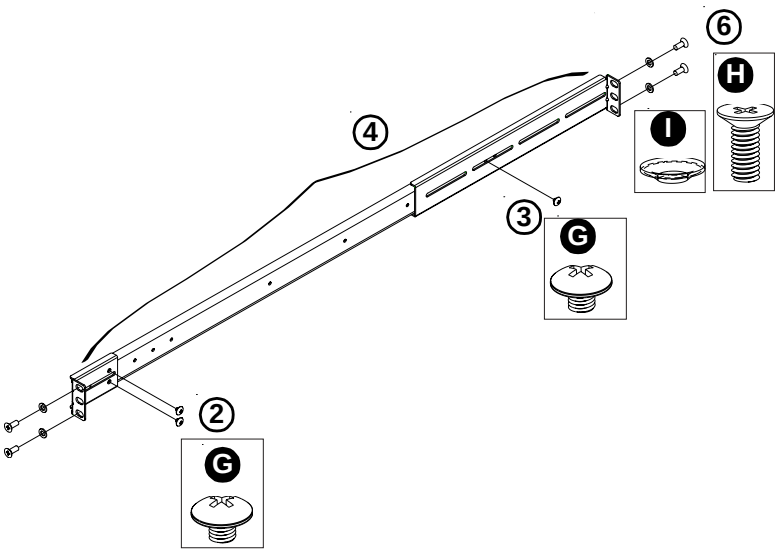
2. Secure the front (-short) bracket (marked with the Up/Front arrows) to the outer rail with two Type G screws.

3. Attach the rear (-long) bracket to the other end of the outer rail and secure the rear (long) bracket to the outer rail with a Type G screw as shown below.

4. Measure the depth of your rack and adjust the length of the rails accordingly.

5. Repeat the same steps to install the other outer rail on the chassis.

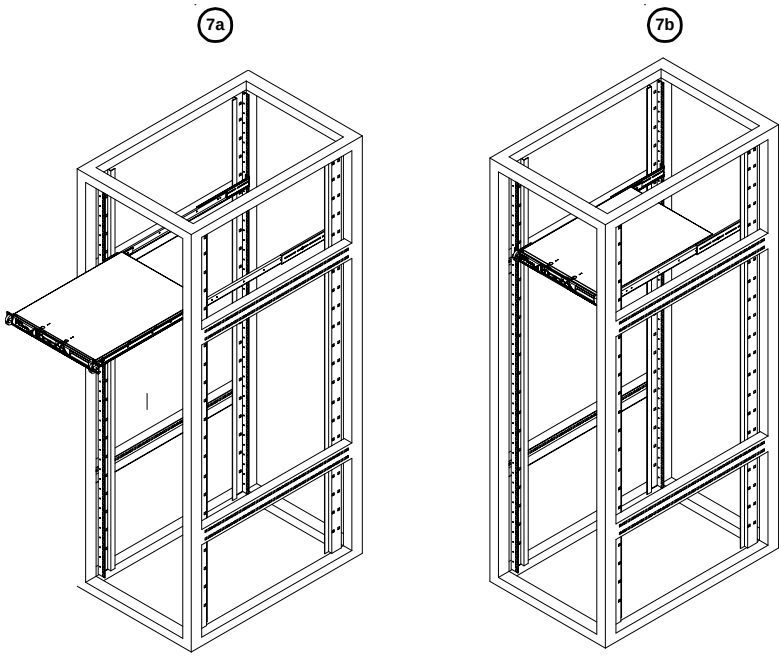
6. Secure both outer rail assemblies to the rack with Type H screws and Type I washers.



7. Slide the SC513 chassis into the rack as shown below:

(The SC513 may not slide into the rack smoothly or easily when installed the first time. However, some adjustment to the slide assemblies might be needed for easy installation.)

8. You will need to release the safety taps on both sides of the chassis in order to completely remove the chassis out of the rack.



J-2 Rack Installation for the Open-Rack Design (*Optional for the SC513)

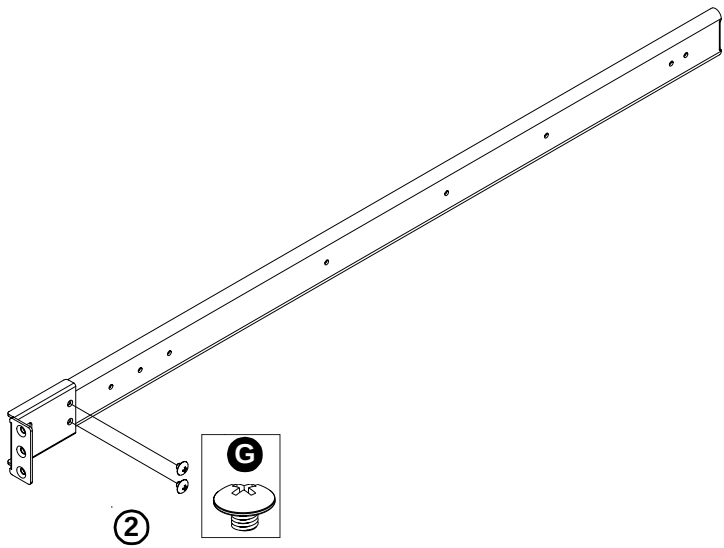
After you have installed the inner rails on the chassis, you are ready to install the outer rails of rail assemblies to the rack.

(* The rails are designed to fit in the racks with the depth of 28" to 33".)

Procedures

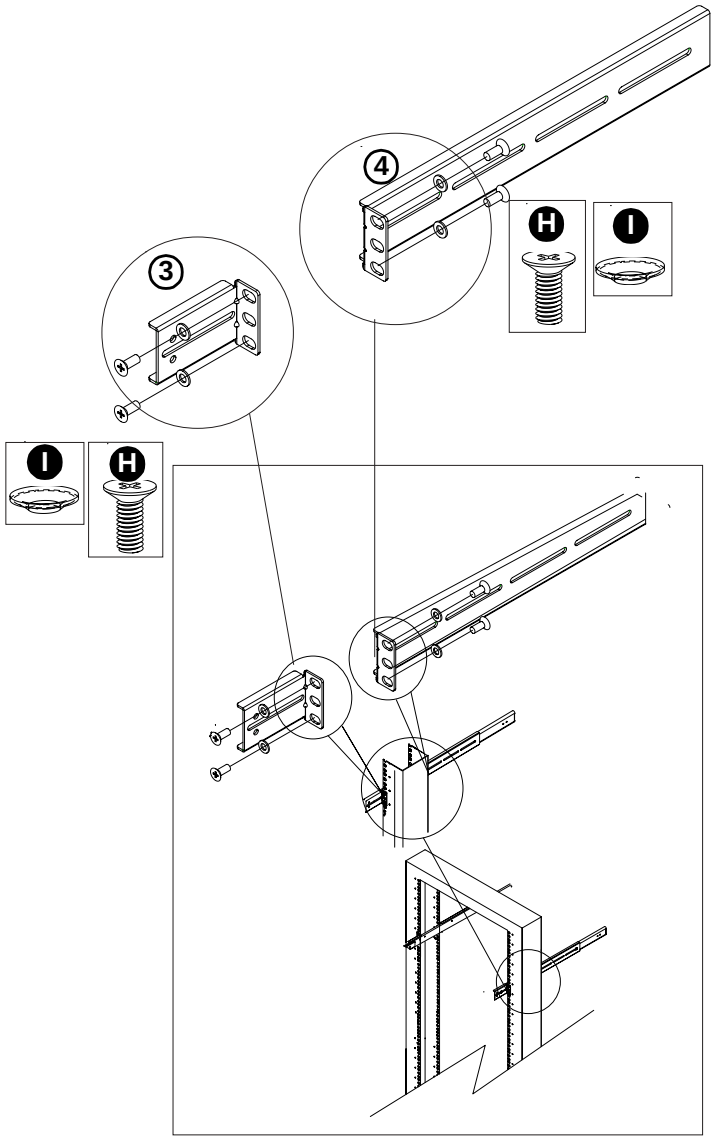
1. In the package, locate a pair of front (-short) and rear (-long) brackets. Please note that the brackets are marked with Up/Front Arrows (-front) and Up/Rear arrows (-rear).

2. Secure the front (-short) bracket (marked with the Up/Front arrows) to the outer rail with two Type G screws as shown below:



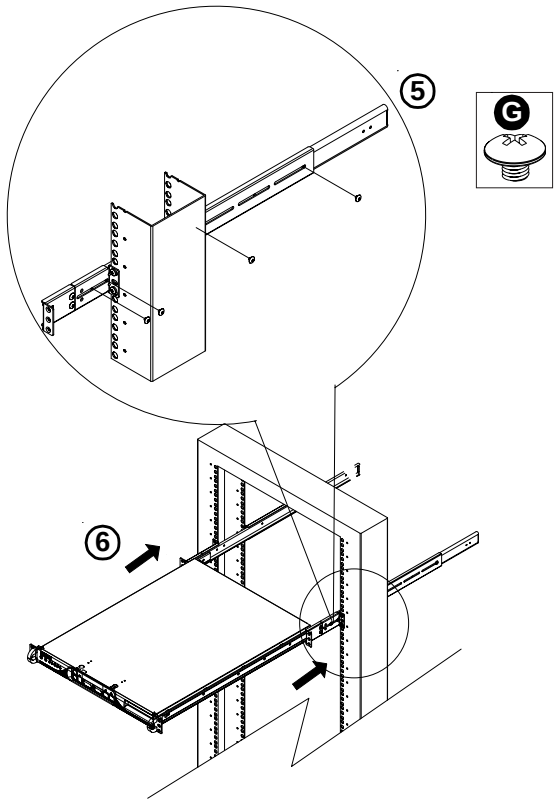
3. Attach the front (-short) bracket to the front end of the rack, and secure it to the rack with two Type H screws and Type I washers as shown below.

4. Attach the rear (-long) bracket to the rear end of the rack, and secure it to the rack with two Type H screws and Type I washers as shown below. Repeat the same steps to install the other outer rail to the other side of rack.



5. Measure the depth of your rack and adjust the length of the rails accordingly. Then, secure the rails to the chassis with Type G screws.

6. Slide the inner rails which are attached to the chassis into the outer rails on the rack.



K. Installing the SC513 into the Racks

(*Note: Please make sure that all components and all chassis covers are properly installed in the chassis before you install the SC513 into the racks; otherwise, out-of warranty damage may occur.)

Procedures

1. Slide the SC513 into the racks and secure it with two screws on each side of the rack as shown in the picture.